

Abstract Submitted  
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**Simulating industrial plasma reactors - A fresh perspective<sup>1</sup>** SEBASTIAN MOHR, SARA RAHIMI, Quantemol, JONATHAN TENNYSON, University College London, OLIVER ANSELL, JASH PATEL, SPTS Technologies — A key goal of the presented research project PowerBase is to produce new integration schemes which enable the manufacturability of 3D integrated power smart systems with high precision TSV etched features. The necessary high aspect ratio etch is performed via the BOSCH process. Investigations in industrial research are often use trial and improvement experimental methods. Simulations provide an alternative way to study the influence of external parameters on the final product, whilst also giving insights into the physical processes. This presentation investigates the process of simulating an industrial ICP reactor used over high power (up to 2x5 kW) and pressure (up to 200 mTorr) ranges, analysing the specific procedures to achieve a compromise between physical correctness and computational speed, while testing commonly made assumptions. This includes, for example, the effect of different physical models and the inclusion of different gas phase and surface reactions with the aim of accurately predicting the dependence of surface rates and profiles on external parameters in SF6 and C4F8 discharges.

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Sebastian Mohr  
Quantemol

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